WE CLAIM:

1. An isolated nucleic acid molecule comprising a nucleotide sequence encoding mutated canine von Willebrand Factor polypeptide which causes canine von Willebrand's disease, wherein the nucleotide sequence is capable of hybridizing under high stringency conditions to the complementary sequence of the sequence of SEQ ID NO. 1 having a mutation at nucleotide 7639.

2. A vector comprising the nucleic acid molecule of Claim 1.

3. A cell comprising the vector of Claim 2.

4. The isolated nucleic acid molecule of Claim 1, wherein the mutation at nucleotide 7639 is a substitution.

5. An isolated nucleic acid molecule comprising a nucleotide sequence encoding mutated canine von Willebrand Factor polypeptide which causes canine von Willebrand's disease, wherein the nucleotide sequence is capable of hybridizing under high stringency conditions to the complementary sequence of the sequence of SEQ ID NO. 1 having a deletion at nucleotide 937.

6. A vector comprising the nucleic acid molecule of Claim 5.

7. A cell comprising the vector of Claim 6.

8. A method of detecting a canine von Willebrand Factor gene in a sample comprising the steps of:

a) contacting the sample with an oligonucleotide comprising contiguous nucleic acids of the nucleotide sequence of SEQ ID NO. 1 having a mutation at nucleotide 7639, and capable of

acid in the sample; and

b) detecting hybridization thereby detecting a canine von

9. The method of Claim 8, further comprising the step of:

c) quantifying hybridization of the oligonucleotide to the complementary sequence.

10. The method of Claim 8, wherein the mutation at nucleotide 7639 is a substitution.

11. A method of detecting a canine von Willebrand Factor gene in a sample comprising the steps of:

a) contacting the sample with an oligonucleotide comprising contiguous nucleic acids of the nucleotide sequence of SEQ ID NO. 1 having a deletion at nucleotide 937, and capable of specifically hybridizing with the canine von Willebrand Factor gene, under conditions favorable for hybridization of the oligonucleotide to any complementary sequences of nucleic acid in the sample; and

b) detecting hybridization, thereby detecting a canine von Willebrand Factor gene.

12. The method of Claim 11, further comprising the step of:

c) quantifying hybridization of the oligonucleotide to the complementary sequence.

13. An assay kit for screening for a canine von Willebrand Factor gene comprising:

a) an oligonucleotide comprising contiguous nucleic acids of the nucleotide sequence of SEQ ID NO. 1 having a mutation at nucleotide 7639, and capable of hybridizing with the nucleotide sequence encoding canine von Willebrand Factor;

b) reagents for hybridization of the oligonucleotide to a

14. The assay kit of Claim 13, wherein the mutation at nucleotide 7639 is

15. An assay kit for screening for a canine von Willebrand Factor gene comprising:

a) an oligonucleotide comprising contiguous nucleic acids of the nucleotide sequence of SEQ ID NO. 1 having a deletion at nucleotide 937, and capable of hybridizing with the nucleotide sequence encoding canine von Willebrand Factor;

b) reagents for hybridization of the oligonucleotide to a complementary nucleic acid sequence; and

c) container means for a)-b).

16. An assay kit for screening for a canine von Willebrand Factor gene comprising:

a) an oligonucleotide comprising contiguous nucleic acids of the nucleotide sequence that is complementary to the sequence of SEQ ID NO. 1 having a mutation at nucleotide 7639, and capable of specifically hybridizing to the complementary nucleotide sequence;

b) reagents for hybridization of the oligonucleotide to a complementary nucleic acid sequence; and

c) container means for a)-b).

17. The assay kit of Claim 16, wherein the mutation at nucleotide 7639 is a substitution.

18. An assay kit for screening for a canine von Willebrand Factor gene comprising:

a) an oligonucleotide comprising contiguous nucleic acids of the nucleotide sequence that is complementary to the sequence of SEQ ID NO. 1 having a deletion at nucleotide 937, and capable

complementary nucleic acid sequence; and

c) container means for a)-b)

19. A method for detecting a mutated canine von Willebrand Factor gene in a canine DNA sample comprising the steps of:

a) amplifying the DNA sample by polymerase chain reaction to produce polymerase chain reaction products, wherein the polymerase chain reaction uses primers that produce a restriction site in a mutant allele but not in a normal allele, wherein the mutation in the mutant allele is a deletion at nucleotide 937 of the gene encoding canine von Willebrand Factor;

b) digesting the polymerase chain reaction products with a restriction enzyme specific to the restriction site of the restriction site primer to produce DNA fragments; and

c) detecting the DNA fragments, thereby detecting a mutated canine von Willebrand Factor gene.

20. The method of Claim 19, wherein the DNA fragments are detected by gel electrophoresis.

21. The method of Claim 19, wherein the primers have the sequence of SEQ ID NOS: 23 and 25.

22. The method of Claim 19, wherein the restriction enzyme is *Mwo* I.

23. A method for detecting a mutated canine von Willebrand Factor gene in a canine DNA sample comprising the steps of:

a) amplifying the DNA sample by polymerase chain reaction to produce polymerase chain reaction products, wherein the polymerase chain reaction uses primers that produce a restriction site in a mutant allele but not in a normal allele, wherein the mutation in the mutant allele is a substitution at nucleotide 7639 of the gene encoding canine von Willebrand Factor;

b) digesting the polymerase chain reaction products with a restriction enzyme specific to the restriction site of the restriction site primer to produce DNA fragments; and

c) detecting the DNA fragments, thereby detecting a mutated canine von Willebrand Factor gene.

24. The method of Claim 23, wherein the DNA fragments are detected by gel electrophoresis.

25. The method of Claim 23, wherein the primers have the sequence of SEQ ID NOS: 28 and 29.

26. The method of Claim 23, wherein the restriction enzyme is *Msp I*.

27. An oligonucleotide probe capable of detecting a mutation associated with canine von Willebrand's disease, wherein the mutation is a base substitution at nucleotide 7639 of the nucleotide sequence encoding canine von Willebrand Factor.

28. The oligonucleotide probe of Claim 27, wherein the substitution at nucleotide 7639 is adenine for guanine.

nucleotide 937 of the nucleotide sequence encoding canine von Willebrand Factor.